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NETWORK OPERATING SYSTEM FOCUS TECHNOLOGY

RTOP 482-58-19-02

AN ACTIVITY STRUCTURED TO PROVIDE SPECIFIC DESIGN REQUIREMENTS AND SPECIFICATIONS FOR THE SS DMS NETWORK OPERATING SYSTEM (NOS) BY THE 1987 PHASE C/D RFP IS OUTLINED. EXAMPLES ARE GIVEN OF THE TYPES OF SUPPORTING STUDIES AND IMPLEMENTATION TASKS PRESENTLY UNDERWAY TO REALIZE A DMS TEST BED CAPABILITY TO DEVELOP HANDS-ON UNDERSTANDING OF NOS REQUIREMENTS AS DRIVEN BY VARIOUS ACTUAL SUBSYSTEM TEST BEDS PARTICIPATING IN THE OVERALL JSC DMS TEST BED PROGRAM. DISCUSSION IS PROVIDED OF A BASIC NOS CONCEPT BASED ON A RECENTLY COMPLETED FY-85 STUDY WHICH PRESENTS A SET OF MINIMUM AND MAXIMUM NOS REQUIREMENTS CONSISTENT WITH A MODULAR/DISTRIBUTED DMS CONCEPT.

NASA OAST
COMPUTER/SCIENCE/DATA SYSTEMS
TECHNICAL SYMPOSIUM

FOCUS TECHNOLOGY 482-58-1902
NETWORK OPERATING SYSTEM

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AVIONICS SYSTEMS DIVISION

NETWORK OPERATING SYSTEM

P. E. SOLLOCK

APRIL 1985

OBJECTIVE:

DEVELOP, PROOF TEST AND DELIVER A SET OF DETAILED DESIGN REQUIREMENTS
FOR SS DMS NOS TO SUPPORT PHASE C/D RFP

RATIONALE:

DMS IS INTEGRATING MEDIA FOR ALL SS DISTRIBUTED SYSTEMS AND SYSTEM/DMS
INTERFACE MUST BE STABLE AND WELL DEFINED TO ALLOW RESPECTIVE VENDOR(S)
DEVELOPMENT OF EACH SYSTEM.

APPROACH:

USE SS DMS TEST BED HANDS-ON INTEGRATION OF REPRESENTATIVE SYSTEM(S)
TEST BEDS (D&C, PM&D, ECSS, C&T,...) TO FORMULATE VALID SET OF DMS
SERVICES AND NOS REQUIREMENTS.

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NOS FY-85 MAJOR ACTIVITIES	AVIONICS SYSTEMS DIVISION
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- 0 NETWORK TECHNOLOGY COMMUNICATIONS ASSESSMENT (LEMSCO SUPPORT CONTRACT)
- 0 NOS FUNCTIONAL REQUIREMENTS STUDY (LEMSCO/UNIVERSITY CONSULTANT)
- 0 LAYER 7 REQUIREMENTS DEFINITION STUDY (AT&T; CANCELED AFTER FIRST REPORT)
- 0 ADA SUITABILITY FOR NOS DESIGN/DEVELOPMENT STUDY (CSDL)
- 0 DEFINITION/DEVELOPMENT OF DMS USERS GUIDE (LEMSCO SUPPORT CONTRACTOR)
- 0 HARDWARE/SOFTWARE FOR UMS TEST BED NETWORK TO SUPPORT NEAR TERM SYSTEM INTEGRATION ACTIVITIES

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* PRINCIPAL ELEMENTS OF THE DMS

- * NETWORK OF HARDWARE & SOFTWARE WHICH CONNECTS OTHER COMPUTER ELEMENTS AND SUPPORTS DATA EXCHANGE AND REMOTE CONTROL
- * DATA BASE HARDWARE & SOFTWARE WHICH PROVIDES DATA STORAGE, RETRIEVAL SERVICES FOR SHARED DATA AND MANAGE CONCURRENCY ASPECTS OF DATA ACCESS
- * MULTIPURPOSE APPLICATION CONSOLES (MPC) TO PROVIDE UNIFORM MAN-MACHINE INTERFACES TO ALL FUNCTIONS
- * FACILITIES MANAGEMENT HARDWARE, SOFTWARE TO PROVIDE SYSTEM-WIDE RESOURCE AND CONFIGURATION MANAGEMENT, ANALYSIS, AND SCHEDULING SERVICES

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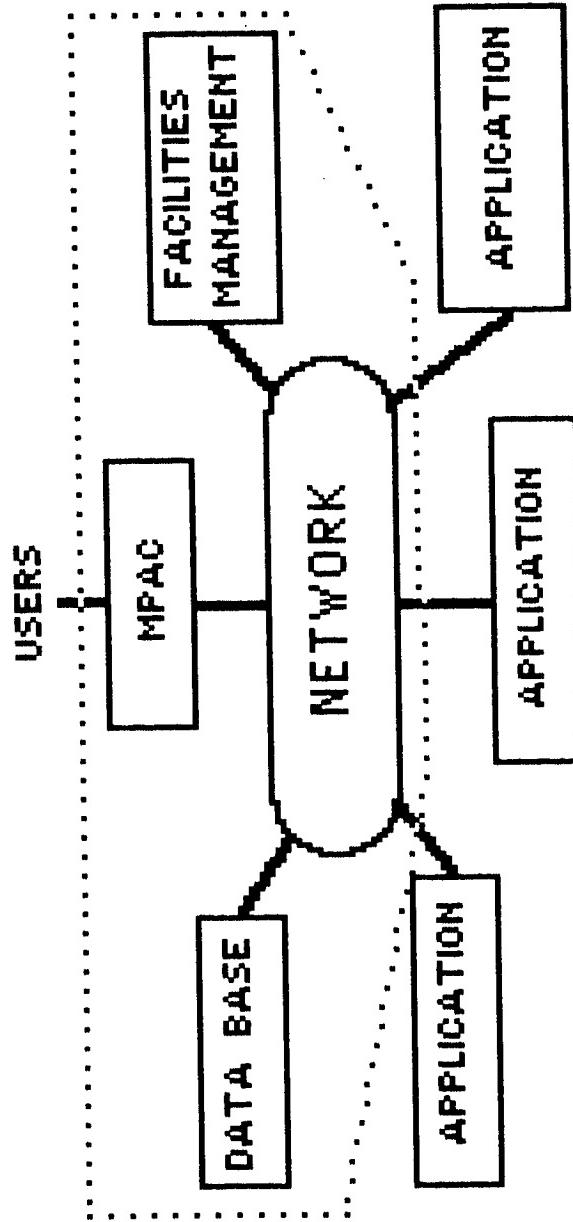


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NETWORK OPERATING SYSTEM
DEFINITION AND DESIGN

MODULAR DMS ORGANIZATION



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NETWORK OPERATING SYSTEM
DEFINITION AND DESIGN

SUBSYSTEMS

DMS
MPAC
FACILITIES MANAGEMENT
DATA BASE MANAGEMENT
NOS

USERS

CLASSICAL OS
COMMAND INTERPRETER
OPERATIONS SUPPORT
FILE SYSTEM
KERNEL

PARALLELS BETWEEN DMS AND
CLASSICAL OPERATING SYSTEMS



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*CLASSICAL OPERATING SYSTEM ELEMENTS

- * KERNEL--SET OF BASIC FUNCTIONS AND SERVICES UPON WHICH ALL SYSTEMS CAPABILITIES ARE BASED
- * FILE SYSTEM--PROVIDES A LOGICAL ORGANIZATION AND HIGH-LEVEL INTERFACE TO EXTERNALLY STORED DATA
- * COMMAND INTERPRETER OR SHELL--PROVIDES AN INTERACTIVE MAN-MACHINE INTERFACE
- * OPERATIONS SUPPORT--PROVIDES A SET OF UTILITIES WHICH CAN BE USED TO CONFIGURE, MANAGE, MONITOR AND OTHERWISE AID MANUAL OPERATION OF COMPUTATIONAL RESOURCES

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* PRINCIPAL NOS FUNCTIONS

- * CONTROL USE OF MEDIUM, INCLUDING ALL CONDITIONS OF ACCESS, SUCH AS WHO, WHAT, WHEN AND FOR HOW LONG
- * PROVIDES STANDARD APPLICATIONS-LEVEL COMMUNICATIONS INTERFACES FOR INTER-SUBSYSTEM TRANSACTIONS
- * PROVIDE CONTINUOUS OPERATION OF THE NETWORK INCLUDING GATHERING PERFORMANCE AND FAULT DATA, SUPPORTING CONFIGURATION CHANGES, AND ERROR RECOVERY

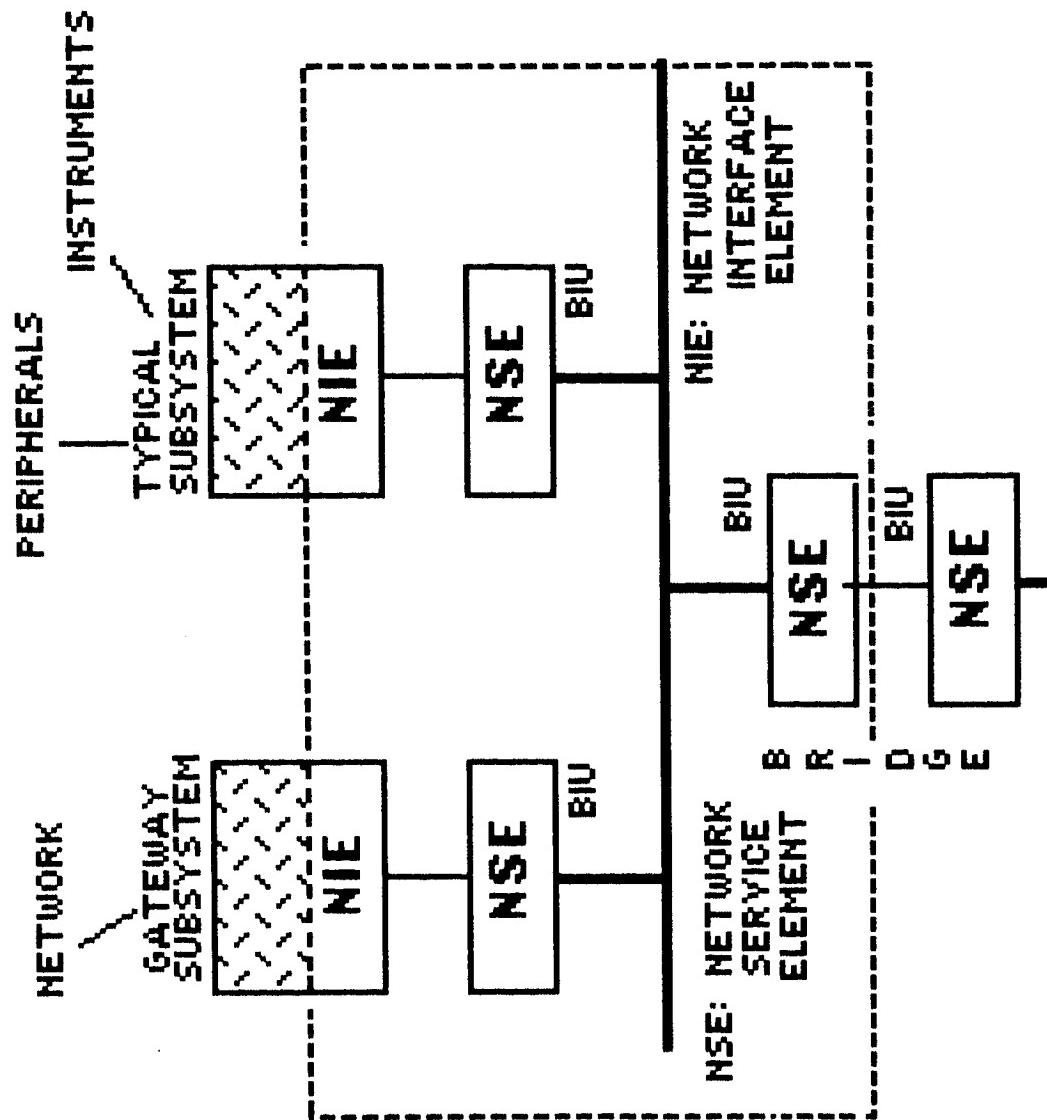


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DOMAIN OF THE NOS



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